



## **PERIMETER SURVEILLANCE RADAR SYSTEM**

### **SESSION 3**

Prepared By:

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## **PERIMETER SURVEILLANCE RADAR SYSTEM (PSRS)**

### **PURPOSE / OBJECTIVES**

The purpose of the Perimeter Surveillance Radar System is to provide automated perimeter security for encampments, installations, equipment, and other high value permanent and temporary sites. The PSRS is designed for deployment in multiple emplacements with continuous overlapping coverage to monitor or secure a designated area.

### **DESCRIPTION**

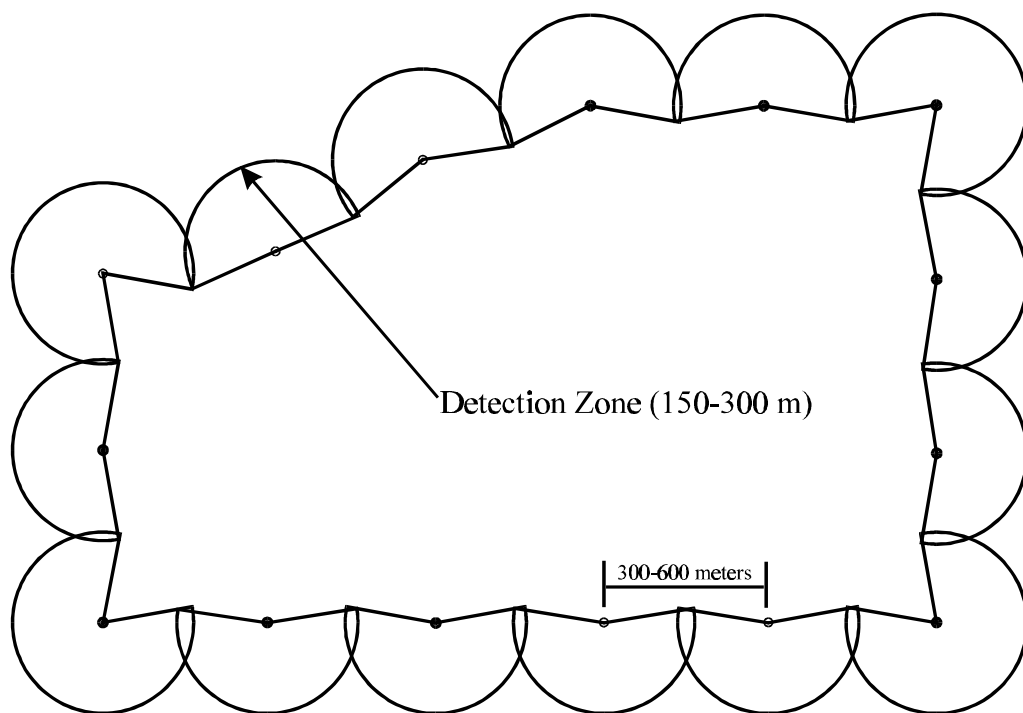
The Perimeter Surveillance Radar System (PSRS) is a portable, low cost system consisting of one or more remotely stationed radar sensors networked to a central control and display unit. The PSRS has all weather, all light-level capability and can detect either moving or stationary targets. It is a low power continuous scan microwave radar sensor. Because of its small size and light weight it is easily transported and set up. The PSRS can be configured for either temporary or permanent installations.



**PSRS REMOTE UNIT**

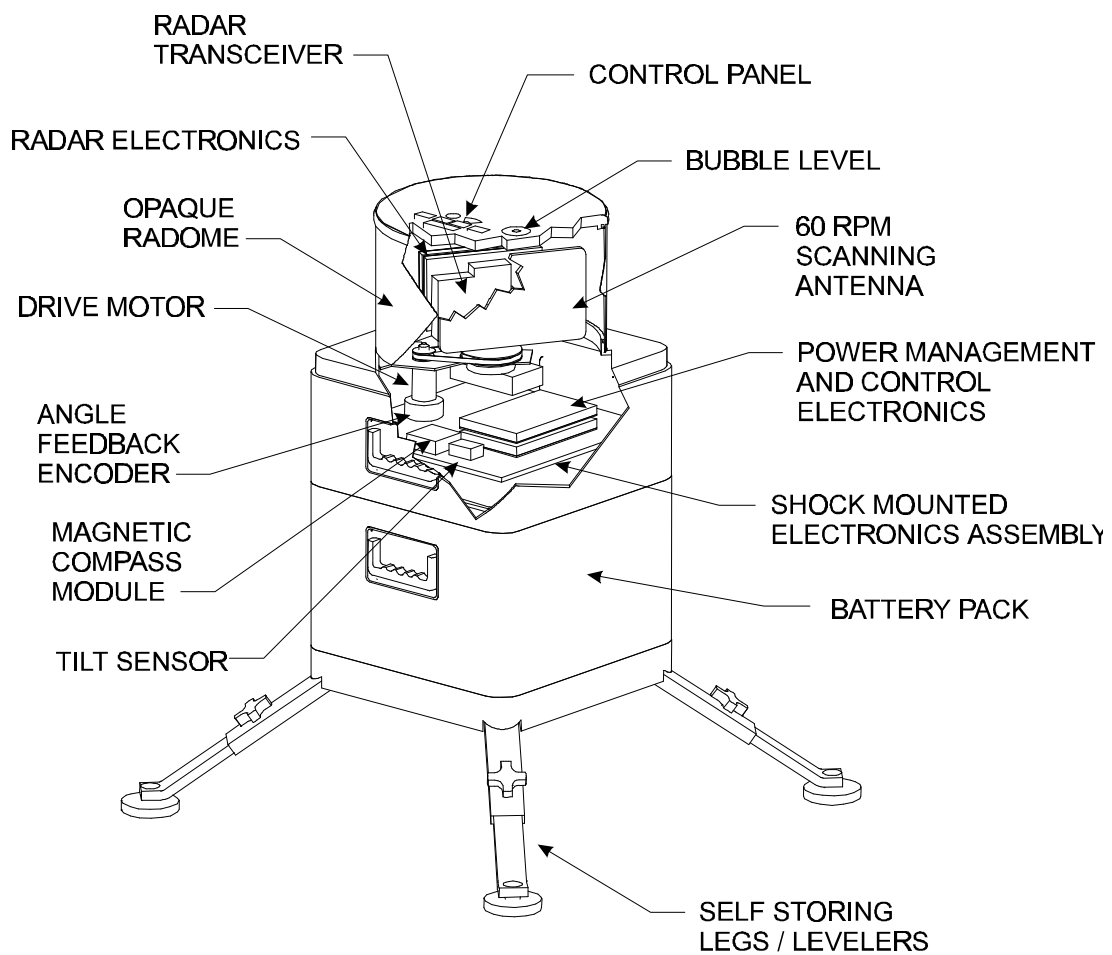
Features of the PSRS systems include:

- ◆ Portable low cost radar surveillance system
- ◆ Light weight for one-man carry (Sensor module 29 lbs, Battery module 60 lbs)
- ◆ Rapid deployment (15 minutes from unpack to operation)
- ◆ Millimeter wave high resolution radar technology with 360° coverage in azimuth
- ◆ Low effective radiated power, poses no threat to human exposure and reduces potential interference with other systems
- ◆ High azimuth angular resolution for improved intrusion recognition
- ◆ High range resolution for improved intrusion recognition (0.5 meters)
- ◆ Sensor elevation coverage provides detection over irregular terrain
- ◆ Scan rates up to one revolution per second
- ◆ Field configurable detection zones, both in angle (0°-360°) and range (5-160 meters, or 10-320 meters)
- ◆ Multiple range zone coverage settable at any angle to eliminate warnings from non-secure areas - roads, irregular shaped areas, etc.
- ◆ Remote sensor operation for up to 72 hours between battery charges
- ◆ Capable of detecting a single person out to 150 meters
- ◆ Capable of detecting vehicles out to 300 meters
- ◆ Built-in magnetic compass for rapid intrusion location
- ◆ Simple, easy to understand presentation of sensor data (visual and/or audio)
- ◆ Can be deployed in temporary or permanent locations
- ◆ Optional GPS for automatic sensor placement reporting
- ◆ Optional solar recharging system
- ◆ Up to 16 units can be controlled from one laptop station

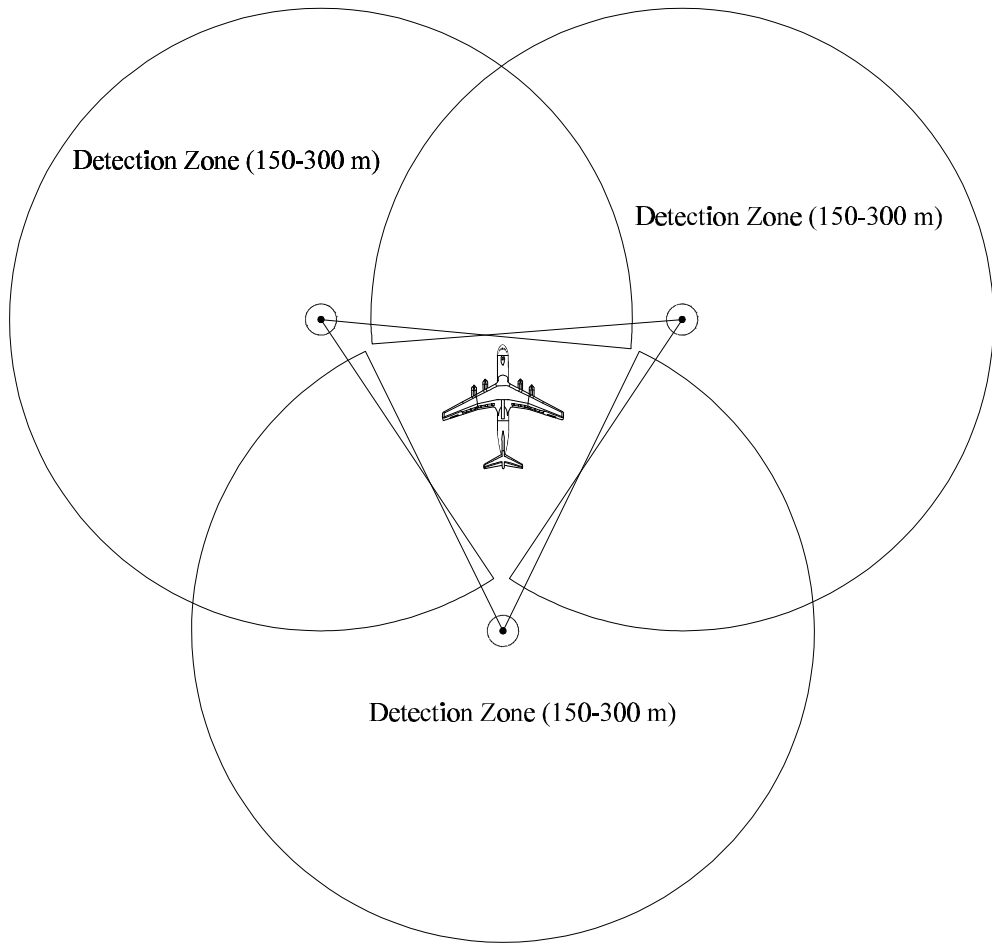


### **TYPICAL SYSTEM IMPLEMENTATION**

A key feature of PSRS is its ability to be programmed in 0.5 meter steps for all 360 degrees to either detect or not detect targets. The above diagram illustrates how the protected area does not generate target activity. Conversely, when an intrusion occurs, the full 360 degree detection capability of PSRS may be activated, and the intruder is tracked to direct the response team to the exact locations of the intruder. This shortens the time the intruder is at large and substantially improves safety for the response team.



**PSRS REMOTE UNIT**



### **TYPICAL AIRCRAFT SECURITY APPLICATION**

NOTE: NUMBER OF PSRS UNITS DEPENDS ON NUMBER AND TYPE OF AIRCRAFT PROTECTED

## PSRS SPECIFICATIONS

<b>SYSTEM</b>	
Target types	Moving / Stationary --Vehicles / Personnel
Maximum Range Personnel	>150 meters
Maximum Range Vehicles	>300 meters
Minimum Range	< 5 meters
Detection Zone	0°-360° and 5-300 meters operator selectable
Range Resolution	0.5 meter
Range Accuracy	1 meter
Range cutoff resolution	1.5 meters (3 range resolution bins)
Scan Rate	1 revolution per second
Weight Sensor Module	13 kg (29 pounds)
Battery Module	27 kg (60 pounds)
Outputs	Direction / Location of Intruder
Communications	Dedicated Short Range (RS-485 or Wireless)
<b>ENVIRONMENTAL</b>	
Temperature	-30 to +60 °C operating -55 to +100 °C storage
Humidity (%)	0 to 95 non-condensing (60°C max)
Altitude (feet above sea level)	-500 to +14,000 operating -500 to +40,000 storage
Vibration ( $g^2/Hz$ power spectral density)	Random, 10 to 1000 Hz, with contour 0.04 $g^2/Hz$ at 10 Hz 0.1 $g^2/Hz$ at 20 Hz 0.1 $g^2/Hz$ at 100 Hz 0.002 $g^2/Hz$ at 800 Hz 0.002 $g^2/Hz$ at 1000 Hz One hour in each axis (approx. 4.3 grms)
Shock (g)	20 g peak for 20 ms, half sine
Wind (mph)	100 max
Container seal	Sealed against precipitation, mud, etc.

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